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***July 23, 2004***

***Operations and Services***

***MARINE AND COASTAL WEATHER SERVICES, NWSPD 10-3***

***MARINE AND COASTAL SERVICES ABBREVIATIONS AND DEFINITIONS***

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***SUMMARY OF REVISIONS:*** This directive supersedes NWSI 10-301, dated July 8, 2003. This directive includes new definitions related to tropical cyclones, and new abbreviations; provides greater detail to Small Craft Advisory, Gale Warning, Storm Warning, and Hurricane Force Wind Warning, and Special Marine Warning definitions and criteria; provides guidelines in the “Gust” definition to the occurrence of “frequent gusts”. This directive also includes definitions for the Marine Observations Report (MOB), Other Marine Reports (OMR), and Plain Language Ship reports (PLS).

Signed

July 9, 2004

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Date

## MARINE AND COASTAL SERVICES ABBREVIATIONS AND DEFINITIONS

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1. Allowed Abbreviations. The following have been agreed to by the NWS and the USCG for use in marine forecast texts.

Day of Week. .... SUN, MON, TUE, WED, THU, FRI, SAT

Months. .... JAN, FEB, MAR, APR, MAY, JUN,  
JUL, AUG, SEP, OCT, NOV, DEC

Direction. .... N, NE, E, SE, S, SW, W, NW

Latitude/Longitude. .... N, S, E, W (e.g., 27N 97W)

Atlantic = ATLC	Average = AVG	Degree = DEG
Equator = EQ	Fathom(s) = FM	Foot/Feet = FT
Hurricane = HURCN	Intertropical Convergence Zone = ITCZ	
Knot(s) = KT	Latitude = LAT	Longitude = LONG
Millibar(s) = MB	Nautical Mile(s) = NM	Pacific = PAC
Pressure = PRES	Position = PSN	Thunderstorm = TSTM
Tropical Depression = TD	Tropical Storm = TS	Visibility = VSBY

2. Definitions.

Advisory: A headline indicator to emphasize that a weather event significant to small craft mariners or marine operations is occurring or is possible.

Beach Erosion. The movement of beach materials by some combination of high waves, currents and tides, or wind.

Brisk Wind Advisory: A small craft advisory issued for ice-covered waters.

Coastal/Lakeshore Flooding: (i) (Oceanic) Coastal Flooding is the inundation of land areas adjacent to bodies of salt water connected to the Atlantic Ocean, Pacific Ocean, or Gulf of Mexico, caused by sea waters over and above normal tidal action. This flooding may impact the immediate oceanfront, gulfs, bays, back bays, sounds, and tidal portions of river mouths and inland tidal waterways. (ii) Lakeshore Flooding is the inundation of land areas adjacent to one of

the Great Lakes caused by lake water exceeding normal levels. Lakeshore flooding impacts the immediate lakefront, bays, and the interfaces of lakes and connecting waterways, such as rivers.

Coastal/Lakeshore Flood Statement (CFW): An NWS product primarily issued to update coastal residents on the status of flooding in areas covered by a Coastal/Lakeshore Flood Watch or Warning. The CFW is used to issue a High Surf Advisory. The CFW may also be used to address minor coastal flooding, (i.e, over and above normal high tide levels, and/or expected to result in only minor damage).

Coastal/Lakeshore Flood Watch/Warning (CFW): An NWS product issued to update coastal residents of possible (watch) or imminent or occurring (warning) coastal/lakeshore flooding.

Coastal Waters Forecast (CWF): The marine forecast for areas, including bays, harbors, and sounds, from a line approximating the mean high water mark (average height of high water over a 19-year period) along the mainland or near shore islands extending out to as much as 100 NM.

Combined Seas: Generally referred to as SEAS. Used to describe the combination or interaction of wind waves and swell in which the separate components are not distinguished. This includes the case when swell is negligible or is not considered in describing sea state. Specifically,  $SEAS = \sqrt{S^2 + W^2}$  where S is the height of the swell and W is the height of the wind wave. When used, SEAS should be considered as being the same as the significant wave height.

Complex Gale/Storm: In the high seas and offshore forecasts, an area for which gale/storm force winds are forecast or are occurring but for which no single center is the principal generator of these winds.

Continental Shelf (CONSHELF): The zone bordering a continent and extending to a depth, usually around 100 FM (600 FT), from which there is a steep descent toward greater depth.

Continental Slope: The area of descent from the edge of the continental shelf into greater depth.

Dense (or Heavy) Fog: Per World Meteorological Organization (WMO) definition, fog restricting visibility to 1 NM or less.

Developing Gale/Storm: In the high seas and offshore forecasts, a headline used in the warnings section to indicate that gale/storm force winds are not now occurring but are expected before the end of the forecast period.

Expiration time: The time noted in the communication's header at which the product is no longer in effect and should have been removed from the communication system.

Fathom: A unit of water depth equal to 6 FT.

Fetch: The across water distance over which waves are generated by winds having an approximately constant direction and speed.

Freezing Spray: An accumulation of freezing water droplets on a vessel at a rate of less than 2 centimeters (cm) per hour caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

Gale Warning. A warning of sustained surface winds, or frequent gusts, in the range of 34 knots (39 mph) to 47 knots (54 mph) inclusive, either predicted or occurring, and not directly associated with a tropical cyclone.

Great Lakes Faxback: A dissemination system housed at Weather Forecast Office (WFO) Cleveland by which Great Lakes customers request and receive hard copies of selected marine products.

Great Lakes Marine Alert Message (MAW): A message generated whenever storm force or greater winds are included in any open lakes forecast.

Great Lakes Marine Forecast (MAFOR): A coded version appended to each of the Great Lakes open lakes forecasts.

Great Lakes Marine Monitoring (MARMON): An automated program housed at WFO Cleveland which compares observations with concurrent MAFORs and provides notification of significant differences to appropriate Great Lakes WFOs.

Great Lakes Storm Summary: A message providing updated information whenever a storm warning is in effect on any of the Great Lakes.

Great Lakes Weather Broadcast (LAWEB): An observation summary prepared to provide Great Lakes mariners with a listing of weather observations along or on the Lakes.

Gust: A fluctuation of the mean wind speed with variations of 10 knots or more between peaks and lulls. Gusts should usually not be included in the forecasts with wind speeds below 10 knots. Gusts occurring on a time-scale greater than 2 hours are considered frequent.

Hague Line: The North Atlantic boundary between the U.S. and Canada fishing waters as determined by the World Court (located in The Hague, Netherlands).

Heavy Freezing Spray: An accumulation of freezing water droplets on a vessel at a rate of 2 cm per hour or greater caused by some appropriate combination of cold water, wind, cold air temperature, and vessel movement.

High Seas Forecasts (HSF): Marine forecasts for the major oceans of the world. In this context, major gulfs or seas (e.g., the Gulf of Mexico or the Bering Sea) are included within these forecast

areas. Areas of responsibility for the U.S. are determined by international agreements under the auspices of the World Meteorological Organization (WMO).

High Surf Advisory. A forecast of high surf conditions on oceanic shores that may pose a threat to life or property. High Surf Advisories are issued using the Coastal Flood Statement (CFW) product. High surf may be characterized by observations specific to a geographical area.

Hurricane/Typhoon: A tropical cyclone in which the maximum sustained surface wind is 64 knots (74 mph) or greater.

Hurricane Warning: A warning for sustained surface winds of 64 knots (74 mph) or higher associated with a hurricane are expected in a specified coastal area within 24 hours or less. A hurricane or typhoon warning can remain in effect when dangerously high water or a combination of dangerously high water and exceptionally high waves continue even though winds may be less than hurricane force.

Hurricane Force Wind Warning: A warning for sustained winds, or frequent gusts, of 64 knots (75 mph) or greater, either predicted or occurring, and not directly associated with a tropical cyclone.

Issuance time: The time the forecaster transmits the forecast.

Knot: Unit of speed used in navigation, equal to 1 NM per hour or about 1.15 statute miles per hour.

Marine Observations Report (MOB): A coded marine observation of the MAROB program whereby mariners report current marine weather conditions, similar to the more in-depth Voluntary Observing Ship program, however, "MAROB" replaces the "BBXX" coding in the report. Pre-registration and training is not a prerequisite for participation.

Marine Weather Statement (MWS): A product to provide mariners with details on significant or potentially hazardous conditions not otherwise covered in existing marine warnings and forecasts.

Marine Zone: Specific, defined over-water areas contained in the various NWS marine forecasts. These are the equivalent of "zones" in the public forecast program.

Nautical Mile: Unit of distance, equal to about 1.15 statute miles (length of 1 minute of latitude).

Navigational Teleprinter Exchange (NAVTEX) Forecast: A marine forecast combining various coastal waters and offshore forecasts issued to accommodate the USCG NAVTEX communication system.

Nearshore Waters Forecast (NSH): The seasonal marine forecast for an area of the Great Lakes from a line approximating mean low water datum along the coast or an island, including bays, harbors, and sounds, out to 5 NM.

North Wall: Coast side boundary of the Gulf Stream generally extending northeast from Cape Hatteras where the Gulf Stream turns northeast.

Offshore Waters Forecast (OFF): A marine forecast for that portion of the oceans, gulfs, and seas beyond the coastal waters extending to a specified distance from the coastline, to a specified depth contour, or covering an area defined by specific latitude and longitude points.

Open Lakes Forecast (GLF): The marine forecast for the U.S. waters within a Great Lake not including the waters covered by an existing Nearshore Waters Forecast (NSH).

Other Marine Reports (OMR): A free-text observation summary prepared by a local Weather Forecast Office to provide mariners a listing of coastal marine weather observations.

Plain Language Ship Reports (PLS): A free-text summary of Marine Report(s) (MAREP). MAREP is a program whereby mariners report current coastal marine weather conditions in the form of plain language reports to local Weather Forecast Offices. Pre-registration and training is not a prerequisite for participation.

Predominant Wind: The wind that generates (or is expected to generate) the local component of the significant sea conditions across the forecast area. This is the wind included in all marine forecast products and is defined as a 10-meter wind.

Primary control tide station. A tide station where continuous observations have been made for a minimum of 19 years. Its purpose is to provide data for computing accepted values essential to tide predictions and for determining tidal datums for coastal and marine boundaries. The data series from primary control tide stations serves as a primary control for the reduction of tidal datum for subordinate tide stations with a shorter period of record. The 19 year period is the official tidal epoch for calculating tidal datums.

Rapidly Intensifying: Any maritime cyclone whose central pressure is dropping, or is expected to drop, at a rate of 1 MB per hour for 24 hours.

Rip Currents: A relatively small-scale surf-zone current moving away from the beach. Rip currents form as waves disperse along the beach causing water to become trapped between the beach and a sandbar or other underwater feature. The water converges into a narrow, river-like channel moving away from the shore at high speed.

Sea Ice: Any form of ice found at sea which has originated from the freezing of sea water (sea ice does NOT include superstructure icing). Ice formed from the freezing of the waters of the Great Lakes will be considered the same as sea ice.

Seas: See Combined Seas.

Seiche. A stationary wave usually created by strong winds and/or barometric pressure and found in large lakes.

Severe Local Storm Watch: An alert issued for the contiguous U.S. and its adjacent waters of the potential for severe thunderstorms or tornadoes.

Significant Wave Height: The average height (trough to crest) of the one-third highest waves. An experienced observer will most frequently report heights equivalent to the average of the highest one-third of all waves observed.

Small Craft Advisory (SCA): An advisory issued by coastal and marine Weather Forecast Offices (WFO) for areas included in the Coastal Waters or Nearshore Forecasts. Thresholds governing the issuance of small craft advisories are specific to geographic areas. WFOs should follow Regional guidelines when issuing an SCA, as seen below.

“Frequent gusts” are typically long duration conditions (greater than 2 hours). For a list of NWS Weather Offices by Region, refer to the following website:

<http://www.nws.noaa.gov/organization.html>

<b>NWS Region</b>	<b>Small Craft Advisory thresholds</b>
Eastern	Sustained winds ranging between 25 and 33 knots (except 20 to 25 knots, lower threshold area dependent, to 33 knots for harbors, bays, etc.) and/or seas/waves 5 to 7 feet and greater, area dependent.
Central	Sustained winds or frequent gusts (on the Great Lakes) between 22 and 33 knots inclusive, and/or seas/waves greater than 4 feet.
Southern	Sustained winds of 20 to 33 knots, and/or forecast seas 7 feet or greater that are/is expected for more than 2 hours.
Western	Sustained winds of 21 to 33 knots. A Small Craft Advisory for Hazardous Seas (SCAHS) is issued for seas 10 feet or greater.
Alaska	Sustained winds or frequent gusts of 23 to 33 knots. A small craft advisory for rough seas may be issued for sea/wave conditions deemed locally significant, based on customer needs, and should be no lower than 8 feet.
Pacific	<u>Sustained winds</u> : northwest through east/southeast winds of 25 to

33 knots for the coastal waters (30 to 33 knots for the channels between the islands); southeast through west winds of 20 to 33 knots for both coastal waters and channel winds.

Swells: open ocean swells 10 feet and greater; swells 6 feet and greater with short periods (6 to 8 seconds); south swell 4 feet and greater with long periods (13 seconds and greater); north and northeast swells 5 feet and greater with long periods.

Special Marine Warning (SMW): A warning of potentially hazardous weather conditions usually of short duration (up to 2 hours) producing sustained marine thunderstorm winds or associated gusts of 34 knots or greater; and/or hail 3/4 inch or more in diameter; and/or waterspouts affecting areas included in a Coastal Waters Forecast, a Nearshore Forecast, or an Open Lakes Forecast that is not adequately covered by existing marine warnings.

Storm Surge. An abnormal rise in sea level accompanying a hurricane or other intense storm, whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the cyclone. Storm surge is usually estimated by subtracting the normal or astronomic tide from the observed storm tide.

Storm Tide. The actual level of sea water resulting from the astronomic tide combined with the storm surge. Most NWS flood statements, watches, or warnings quantifying above-normal tides will report the Storm Tide.

Storm Warning: A warning of sustained surface winds, or frequent gusts, in the range of 48 knots (55 mph) to 63 knots (73 mph) inclusive, either predicted or occurring, and not directly associated with a tropical cyclone.

Sustained Wind: The wind speed obtained in the U.S. by averaging observed values over a period of at least 1 minute.

Subtropical Cyclones. A non-frontal low pressure system having characteristics of both tropical and extratropical cyclones.

1. The most common type is an upper-level cold low with circulation extending to the surface layer and maximum sustained winds generally occurring at a radius of about 100 miles or more from the center. In comparison to tropical cyclones, such systems have a relatively broad zone of maximum winds that is located farther from the center, and typically have a less symmetric wind field and distribution of convection.

2. A second type of subtropical cyclone is a mesoscale low originating in or near a frontolyzing zone of horizontal wind shear, with radius of maximum sustained winds generally less than 30 miles . The entire circulation may initially have a diameter of less than 100 miles. These generally short-lived systems may be either cold core or warm core.”

Subtropical Depression. A subtropical cyclone in which the maximum 1-minute sustained surface wind is 33 knots (38 mph) or less.

Subtropical Storm. A subtropical cyclone in which the maximum 1-minute sustained surface wind is 34 knots (39 mph) or more.

Super Typhoon. Typhoon having maximum sustained winds of 130 knots (150 mph) or greater.

Surf Zone Forecast (SRF): A routine or event-driven forecast issued for the very narrow area of water between the high tide level on the beach and the seaward side of breaking waves.

Swell: Wind-generated waves that have traveled out of their generating area. Swell characteristically exhibits smoother, more regular and uniform crests and a longer period than wind waves.

Tidal cycle. The periodic changes in the range of tides caused primarily by varying relations among the Earth, Sun, and moon. Important terms include: (a) Apogee-The farthest distance between the moon and Earth (or Earth and Sun), (b) Perigee-The closest distance between the moon and Earth (or Earth and Sun), and (c) Syzygy-The instance (new moon or full moon) when the Earth, moon, and Sun are all in a straight line. For (b) and (c) the range of tides are greater than average.

Tidal Piling. Abnormally high water levels from successive incoming tides that do not completely drain because of strong winds or waves persisting through successive tide cycles.

Tropical Cyclone: A warm-core, non-frontal synoptic-scale cyclone, originating over tropical or subtropical waters with organized deep convection and a closed surface wind circulation about a well-defined center.

Tropical Depression: A tropical cyclone in which the maximum sustained surface wind is 33 knots (38 mph) or less.

Tropical Disturbance. A discrete tropical weather system of apparently organized convection (generally 100 to 300 miles in diameter), originating in the tropics or subtropics, having a non-frontal migratory character and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.

Tropical Storm: A tropical cyclone in which the maximum sustained surface wind ranges from 34 to 63 knots (39 to 73 mph) inclusive.

Tropical Storm Warning: A warning for sustained surface winds, associated with a tropical cyclone, within the range of 34 to 63 knots (39 to 73 mph), expected in a specified coastal area within 24 hours.

Tropical Wave (formerly known as inverted trough). A trough or cyclonic curvature maximum in the trade wind easterlies. The wave may reach maximum amplitude in the lower middle troposphere or may be the reflection of an upper tropospheric cold low or an equatorward extension of a mid-latitude trough.

Universal Time Coordinated (UTC): The standard international time reference based on the time at 0° longitude (Greenwich Meridian).

Valid Time: That period of time during which a forecast, until it is updated or superceded by a new forecast issuance, is in effect.

Visibility: A measure of the opacity of the atmosphere. The prevailing visibility is the greatest distance that can be seen throughout at least half the horizon circle, not necessarily continuous. Visibility reported or forecast in NWS marine products should be in nautical miles.

Warning Area: The geographic area for which a specific NWS office is responsible for warning and forecast responsibility.

Warning: A headline indicator to emphasize that a weather event hazardous to all mariners or marine operations is occurring or expected to occur.

Waterspout: A rotating column of air over water whose circulation extends to the surface.

Wave Period: Time, in seconds, between the passage of consecutive wave crests past a fixed point.

Wave Spectrum: The distribution of wave energy with respect to wave frequency or period. Wave spectra assist in differentiating between wind waves and swell.

Wave Steepness: The ratio of wave height to wavelength and is an indicator of wave stability. When wave steepness exceeds a 1/7 ratio; the wave typically becomes unstable and begins to break.

West Wall: The coast side boundary of the Gulf Stream typically south of Cape Hatteras.

Wind Radii. Found in the tropical forecast advisory/products, wind radii is the largest radii of that wind speed found in that quadrant. Quadrants are defined as NE (0-90), SE (90-180), SW (180-270), and NW (270-0). As an example, given maximum 34 knot radii to 150 NM at 0 degrees, 90 at 120 degrees, and 40 NM at 260 degrees, the following line would be carried in the forecast/advisory: 150NE 90SE 40SW 150NW.

Wind Waves: May be referred to as WAVES. Waves generated from the action of wind on the local water surface. On the Great Lakes because swell is not a significant factor, WAVES is used to describe the state of the water.